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Behavior Intention Towards the Adoption of Innovative Household Sanitary Ware: A Case Study of Jakarta, Indonesia

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ABSTRACT

This study tried to describe the behavior intention factors related to adopt the innovative bidet toilet seats in the households. The increase of the middle class population in Indonesia creates a new demand for adopting innovative products to enhance lifestyles. There were many electronic home appliance products have been easily adopted in Jakarta households, however there has been low adoption for electronic bidet toilet seats in household bathrooms. This study aims to identify and analyse the critical factors involved in adopting these seats in households and to explore the relative significance of each of these factors. It reports the results of empirical tests conducted regarding the non users' adoption of these seats, based on the extended Theory of Planned Behavior. This study was administrated to 115 participants in Jakarta. Descriptive statistic, correlation analysis and multiple regressions were performed to determine the important factors. The results indicate that intention, voluntariness, observability, water usage and age are positively influence the adoption of the seats in urban households in Jakarta.

Keywords: behavior adoption, electronic bidet toilet seats, urban households, jakarta

1. Introduction

As a newly emerging economic country, Indonesia has seen an increase of economic income that is creating new middle and upper-class urban populations (Shiraishi, 2004). The growth of these classes has increased the demand for innovation products, which will enhance people's life styles. In their search for growth, multinational corporations are promoting innovative products as they enter emerging markets (Prahalad et.al, 1998). The economic slowdown in the U.S, Europe, and other developed countries has renewed interest in the emerging markets of developing countries (Shintaku, 2009). The new middle and upper-class urban population in Indonesia easily adopts new innovative products that they believe can enhance value in their daily lives. Although these households have already adopted many innovative electronic products, they have yet to adopt electronic toilets.

Numerous studies have been conducted on the adoption of innovative products in society and on behavioral intention regarding to it. Nevertheless, very little research exists on the people's perception and behavior toward adopting advanced technological toilet in their households. One study that considers toilets in urban areas in Indonesia describes that it is important to evaluate people's habitual and economic capacity regarding their adaptability to alternative toilet technology (Shintawardani, 2007).

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Water sprays and water dippers use a significant amount of water for daily toilet activities. This plentiful water usage could raise water costs and cause water shortages, especially in populous cities such as Jakarta. Furthermore, the downside of abundant water use, another problematic area of the traditional toilets is the hygiene risk involved in using one's hand for personal cleansing. This type of activity causes around 1.4 billion people to become infected with round worm *(Ascaris lumbricoides)* (WHO, 2004), which is a major concern for hygiene specialists, making anal cleansing one of the more relevant areas of concern (Rosemarin et al., 2007).

The adoption of electronic bidet toilet seat is very low, and the reason why people are, or are not, interested in adopting the product is far from being completely understood; there have, however, been minor studies conducted on innovative toilet adoption in Indonesian urban houses. To understand the adoption pattern of innovative toilet in Indonesia, this study describes the significant adoption factors towards adoption the products based on adopter categories.

2. Theoretical Framework

Since this study focuses on the adoption of electronic bidet toilets in urban households, which have been considered in the discussion of the adoption of the innovative product and people's behavior intention, the Diffusion of Innovation Theory and TPB, which are combined in this research (figure 1).

The work on technology acceptance outcomes, notably in innovation diffusion studies, argues for a more comprehensive set of beliefs (Rogers, 1983). The diffusion theory is already used by many fields of research and has been used by several professionals in a number of areas, from agriculture to marketing. Rogers also described innovativeness as the level to which an individual or other unit of adoption is relatively early in adopting new innovation idea compared to other members in a social system.

According to Rogers (1995), the variance of the rate of adoption is explained by the following five attributes: relative advantage, compatibility, complexity, trialability and observability. The work on technology acceptance outcomes, notably in innovation diffusion studies, argues for a more comprehensive set of beliefs (Rogers, 1983). The diffusion theory is already used by many fields of research and has been used by several professionals in a number of areas, from agriculture to marketing.

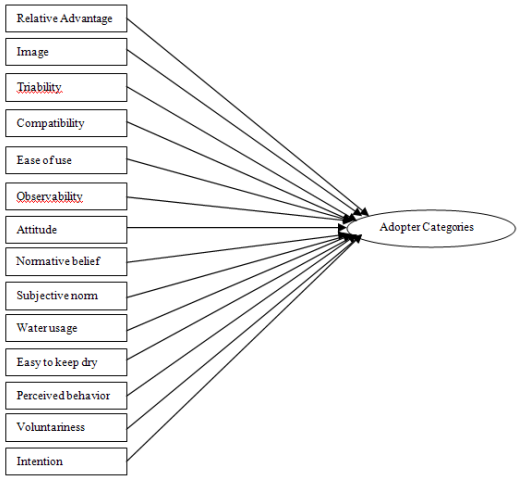

Figure 1. Adjusment of Theory Planned Behavior

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The literature on innovation diffusion offers a set of innovation characteristics that may influence an individual's opinion of the innovation prior to accepting a product and may affect the rate at which innovations are

adopted (Karahanna et.al, 1999). The attributes most commonly considered include the following: the relative advantage of the new product, the degree to which the innovation is perceived as being superior to the idea or product it is replacing (Labay et.al, 1981). Ease of use is the extent to which the innovation appears easy to understand. Compatibility is the degree to which the innovation is viewed as consistent with the innovator's existing values, past experiences, and needs.

Trialability is the extent to which an individual can experiment on a limited basis with innovation. Observability is the degree to which the results of innovating are visible to family and friends. A similar theory to Roger's Diffusion of Innovation Theory is Theory Planned Behavior (TPB). The TPB provides a theoretical framework for systematically investigating the factors which influence behavioral choices, and has been widely used to investigate behavior (Tonglet et.al. 2004).

TPB has also been used in much behavioral research to predict and explain human behavior across a variety of settings while considering the roles of individual and social systems (Azjen, 1991; Chen et.al, 2007). According to TPB, the most proximal determinant of an individual's behavior is his or her intentions to engage in the behavior (Fielding et.al, 2008). Based on TPB, behavior intention is established on the basis of behavior attitudes, subjective norms, and perceived behavioral control (Hasler et.al, 2008). According to TPB, a behavior is mainly determined by a related intention. If a person perceives that there are positive outcomes resulting from an activity, then his or her attitude towards performing that behavior is likely to be positive (Cunningham, 2003). The theory also claims that an individual who holds a positive attitude toward adopting electronic bidet toilet seats believes that there is normative support for adopting the product and that these seats could control water usage, and should have strong intentions for adopting them.

3. Methods

In this study, middle-class household consumers in Jakarta were used and data was collected using questionnaires to identify their behavior intentions for adopting electronic bidet toilets in their households. In order to easier control the survey results in Jakarta area, the survey's location was conducted in South Jakarta District (Figure 2). To learn about the middle income households, the study focus on households which located in low density population, single family for middle and upper income group.

The survey was conducted in five sub districts such as Tebet, Pancoran, Mampang Perapatan, Pasar Minggu and Setia Budi (Figure 3). In Tebet sub district, the survey was conducted in Tebet Timur and Tebet Barat village. The survey in Pancoran sub district was conducted in Kalibata village and Pancoran village. The survey in Mampang Perapatan sub district was conducted in Kuningan Barat village. The survey in Pasar Minggu sub district was conducted in East Pejaten and West Pejaten village. The survey in Setia Budi sub district was conducted in Setia Budi village. The survey was administrated for one month in June 2010, to Jakarta middle-class households and generated 137 responses, with response rate of 84 percent.

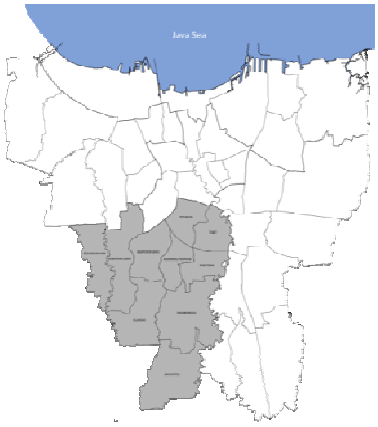

Figure 2. South Jakarta district

The respondents were asked to fill the questionnaire, if the respondents did not want to fill it directly, they may keep the questionnaire until the following days to be collected again. The questionnaires were given directly to the respondents and entire respondents are the non user of the product, and using a standardized questionnaire in Indonesian language. To assist respondents in understanding the product, colorful pictures of the product and an explanation of its features were presented prior to them for answering the questionnaires, showing them that the product is easy to use.

4. Procedures and Measure

The questionnaire consists of three components: demographic inquiries, a questionnaire based on the extended TPB model (Figure 1) and open question about the product barrier factors. Based on a likert scale, respondents were asked to mark their answers ranging from "strongly agree" (5) to "strongly disagree" (1) or "neither agree nor disagree" (3). The questions are based on factors of adoption attributes factors and behavior toward adopting the product. Various demographic data were also collected, including age, education, income level, and number of family members.

To obtain valid data, we selected completed questionnaire answers. First, the data were screened by removing incomplete and suspicious responses, and 22 invalid questionnaires were deleted, leaving 115 valid data for being used in the data analysis. Given that, this study was conducted for examination purposes, descriptive statistics were completed using the Statistical Package for Social Science (SPSS) for Windows Version 16.0. Bivariate correlations were used to assess the association between variables in the Diffusion of Innovation and Theory of Planned Behavior, and multiple regressions were used to analyze identified variables that predominantly affected adoption behavior and intention.

a. Relative Advantage. This was measured with an item: 'it would give me comfort in cleaning the backside' (1=strongly disagree to 5=strongly agree).
b. Image. These were measured with two items: 'it would increase my social status in neighborhood by use this product' (1=strongly disagree to 5=strongly agree) and 'it would enhance my social status by guests or visitors' (1=strongly disagree to 5=strongly agree).
c. Compatibility. These were measured with two items: 'it is suitable with the way I clean my backside before' (1=strongly disagree to 5=strongly agree) and 'it is compatible with what I need' (1=strongly disagree to 5=strongly agree).
d. Ease of use. These were measured with two items: 'this product looks easy to use' (1=strongly disagree to 5=strongly agree) and 'this product's feature looks easy to understand' (1=strongly disagree to 5=strongly agree).
e. Triability . This was measured with an item: 'it is easy to find the product in the hotels or shopping malls' (1=strongly disagree to 5=strongly agree).
f. Observability . These were measured with two items: 'it is easy to find in the hotels or shopping malls' (1=strongly disagree to 5=strongly agree) and 'it is easy to talk about this product to others' (1=strongly disagree to 5=strongly agree).
g. Attitude. This was measured with an item: 'it would make me clean and hygiene' (1=strongly disagree to 5=strongly agree).
h. Subjective norms. This was measured with an item: 'my family suggests that I should adopt this product' (1=strongly disagree to 5=strongly agree).
i. Normative belief . This was measured with an item: 'my friends suggest that I should adopt this product' (1=strongly disagree to 5=strongly agree).
j. Perceive behavior control . These were measured with two items: 'I could enhance cleanliness in my backside by use this product' (1=strongly disagree to 5=strongly agree) and 'I could avoid using

hand to clean backside by use this product' (1=strongly disagree to 5=strongly agree).

k. Water usage. These were measured with two items: 'I could control water usage by use this product' (1=strongly disagree to 5=strongly agree) and 'I could save water by use this product' (1=strongly disagree to 5=strongly agree).
l. Easy to keep clean. These were measured with two items: 'It would be easier to clean the bath room by use this product' (1=strongly disagree to 5=strongly agree) and 'It would be easier to keep the bathroom dryer by use this product' (1=strongly disagree to 5=strongly agree).
m. Voluntariness. This was measured with an item: 'even not familiar, I want to try this product' (1=strongly disagree to 5=strongly agree).
n. Intention. These were measured with two items: 'even not familiar, I want to use this product' and 'I want to replace my existing toilet with this product' (1=strongly disagree to 5=strongly agree).

To indentified detail predictor variables in both adoption factors and barrier of adoption factors that predominantly affected adopter categories, the respondents were segmented based on adopter categories questions. Firstly, the adopter respondent who answered agrees as the product adopter, classified as the early adopter. Secondly, the non adopter respondent who familiar with the product and agree to change their existing toilet with the product, classified as the early majority. The respondent who did not familiar with the product however they interested to find product information and agree to change their existing toilet with the product, segmented as the early majority.

Thirdly, if the respondent familiar with the product however they disagree to change their existing toilet with the product, they will indentified as the late majority. The respondent who did not familiar with the product however interested to find product information and disagree to change their existing toilet with the product, they will also classify as the late majority. Lastly, the respondent who did not familiar and did not interested to find product information and also did not want to adopt the product will be identified as the laggards.

In this analysis, descriptive analysis was used to describe mean each variable. Bivariate correlation was used to assess the association between variables. The Pearson linear correlation was applied to check the existence of relationship between two variables in this research. The linear multiple regressions were used to analyze the relationship between single response variable (dependent variable) with two or more controlled variables (independent variables). This research applied stepwise regression method to indentify predictor variables that predominantly affected adopter categories and barrier factors of non electronic and electronic bidet toilet seats adoption both in Jakarta and Bumi Serpong Damai. Adjusted R^2 is a measure of the loss of predictive power or shrinkage in regression. The adjusted R^2 will explain how much variance in the outcome would be accounted for if the model had been derived from the population from which the sample was taken. The larger adjusted R^2, the better the model fits the data.

5. Findings

Demographic data on the respondents in the final sample are shown in Table 1.

Table 1. Jakarta demography of electronic bidet toilet seats customers

Jakarta N = 115			
Adopter Categories	**Early Majority**	**Late Majority**	**Laggards**
N	43	35	37
%	%	%	%
Gender			
Male	41.9	62.9	62.2
Female	58.1	37.1	37.8
Age			
Less than 20 years old	0.0	0.0	0.0
20-30 years old	4.7	5.7	10.8
30-40 years old	65.1	48.6	56.8
40-50 years old	18.6	28.6	27.0
Over 50 years old	11.6	17.1	5.4
Education			
High School	7.0	5.7	13.5
Diploma	18.6	5.7	5.4
Undergraduate	55.8	77.1	48.6
Master	18.6	11.4	32.4
Doctor	0.0	0.0	0.0
Monthly Income			
Below Rp.5.000.000	9.3	17.1	34.4
Rp.5.000.000 - Rp.10.000.000	48.8	54.3	50.0
Rp.10.000.000 - Rp.15.000.000	20.9	17.1	0.0
Rp.15.000.000 - Rp.20.000.000	16.3	7.3	9.4
Over Rp.20.000.0000	4.7	4.9	6.4

The table shows Jakarta respondent demographic of non electronic bidet toilet seats and electronic bidet toilet seats based on adopter categories. There were three adopter categories for electronic bidet toilet seats. There were 43 respondent identified early majorities, late majorities with 35 respondents and laggards with 37 respondents. Respondent ages between 30-40 years were dominated in all categories. Most of the respondent education level was undergraduates in all adopter categories except in early adopter respondent with master education level. Most of the income range between Rp.5.000.000 – Rp. 10.000.000. Most of the respondents own their own house.

Table 2 shows the mean, standard deviation and the Pearson correlation variables of early majority electronic bidet toilet seats survey response in Jakarta. The highest positive adoption factor mean was easy to keep dry (mean = 4.23, S.D = 0.48).

Table 2. Mean and Correlation on early majority adopter of electronic bidet toilet seats in Jakarta

Mean and Correlations

		N	Mean	Std. Deviation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	**Early majority**	43	3,33	1,27	1																
2	**Relative advantage**	43	4,10	0,67	0,237	1															
3	**Attitude**	43	4,14	0,65	0,221	.697**	1														
4	**Image**	43	3,93	0,95	-0,01	0,228	0,262	1													
5	**Compatibility**	43	3,64	0,85	0,156	.553**	.692**	0,103	1												
6	**Ease of use**	43	4,01	0,54	0,102	-0,04	.322*	-0,01	0,08	1											
7	**Triability**	43	2,79	1,10	0,04	0,055	0,1	-0,1	0,128	0,056	1										
8	**Observability**	43	2,53	0,83	-0,02	0,212	0,164	-0,16	.339*	0,003	.760**	1									
9	**Subjective norm**	43	2,84	1,11	0,013	.426**	.454**	-0,05	.546**	0,082	.347*	.603**	1								
10	**Normative belief**	43	2,84	1,15	0,11	.314*	0,277	-0,13	.481**	-0,03	.426**	.734**	.669**	1							
11	**Water usage control**	43	4,14	0,68	-0,04	.452**	.303*	-0,01	.596**	-0,08	0,207	.597**	.483**	.701**	1						
12	**Behavior control**	43	4,10	0,73	0,077	.632**	.442**	0,145	.389**	0,028	.347*	.567**	.462**	.574**	.678**	1					
13	**Easy to keep dry**	43	4,23	0,48	0,204	0,256	0,227	.659**	0,027	0,066	-0,11	-0,2	0,022	-0,11	0,074	.330*	1				
14	**Voluntariness**	43	3,74	0,84	-.377*	-0,25	-0,07	0,098	0,02	-0,09	-0,07	0,018	0,093	-0,01	-0,16	-0,26	-0,18	1			
15	**Intention**	43	4,21	0,67	.430**	0,269	.539**	0,243	.523**	0,246	-0,22	-0,11	0,113	0,156	0,071	-0,02	0,122	0,039	1		
16	**Age**	43	3,37	0,76	0,092	-0,16	-0,27	0,173	-0,26	-0,15	-0,01	-0,21	-.418**	-0,29	-0,1	-0,05	0,237	-0,19	-0,24	1	
17	**Education**	43	2,86	0,80	-0,13	-0,01	-0,17	-0,17	0,142	-0,06	0,276	.440**	0,25	0,256	0,267	0,168	-0,19	0,203	-0,21	-0,07	1
18	**Income**	43	2,58	1,03	0,216	-0,18	-.313*	0,112	-.305*	-0,19	0,126	0,055	-0,11	-0,04	-0,2	-0,08	0,102	-0,03	-0,05	.358*	0,244

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The result shows that the early majority respondent will adopt the product because by using the product, it will keep their bathroom dry. Strong correlations were found between observability and triability (r=0.760, p<0.01), the result may indicates that the respondent with stronger willingness to find the product tend to conducted trial the product in public building. Normative belief was positively strong correlated with observability (r=0.734, p<0.01), it may suggest that the more likely respondent received pressure from their peers to adopt the product, the more likely they eager to find the product.

Strong correlation also found between attitude and relative advantage (r=0.697, p<0.01). The result indicates that the more likely the respondents feel comfortable to use the product, the more likely they will avoid using hand to clean back side. Other strong correlation was found between compatibility and attitude (r=0.692, p<0.01). The finding indicates that the respondent who feel the product compatible with their behavior tend to feel comfortable to use the product.

Table 3 shows the mean, standard deviation and the Pearson correlation variables of late majority electronic bidet toilet seats survey response in Jakarta. The highest positive adoption factor mean was easy to keep dry (mean = 4.17, S.D = 0.38). Most of the late majority respondent will adopt the product if they feel that the product will keep the bathroom dry. Very strong correlation was found between normative belief and subjective norm (r=0.914, p<0.01).

The finding indicates that that the respondents with strong pressure from their peer tend to received strong pressure from their family. Strong correlations were found between observability and triability (r=0.740, p<0.01), the result indicates that the respondent with stronger willingness to find the product tend to conducted trial the product in public building.

The strong correlation were also found between subjective norm and observability (r=0.684, p<0.01) and between normative belief and observability (r=0.628, p<0.01). The result may suggest that the respondent with strong pressure from family and peer tend to find out the product and talk about the product with others.

Table 4 shows the mean, standard deviation and the Pearson correlation variables of laggard electronic bidet toilet seats survey response in Jakarta. The highest positive adoption factor mean was easy to keep dry (mean = 3.86, S.D = 0.86). The most important adoption factor for laggard was easy to keep bathroom dry by use the product. There were strong correlations were found between easy to keep dry and perceived behavior control (r=0.760, p<0.01). This indicates that respondent with strong feeling that the product will help them to keep bath room dry tend to avoid using hand to clean backside. Observability was positively strong correlated with triability (r=0.745, p<0.01), the result indicates that the respondent with stronger willingness to find the product tend to conducted trial the product in public building.

Table 3. Mean and correlation late majority adopter of electronic toilet seats in Jakarta

	Mean and Correlations																				
		N	Mean	Std. Deviation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	**Late majority**	35	3,94	0,48	1																
2	**Relative advantage**	35	3,77	0,56	-0,01	1															
3	**Attitude**	35	3,44	0,83	0,013	0,208	1														
4	**Image**	35	3,40	1,01	-0,15	0,31	0,15	1													
5	**Compatibility**	35	2,76	0,93	0,007	0,289	.624**	-0,05	1												
6	**Ease of use**	35	3,33	0,93	-0,13	0,127	0,128	-0,03	0,321	1											
7	**Triability**	35	2,60	0,98	.357*	-0,12	0	-0,19	-0,01	0,165	1										
8	**Observability**	35	2,40	0,78	.372*	-0,07	-0,02	-0,09	-0,1	0,163	.740**	1									
9	**Subjective norm**	35	1,97	0,71	0,14	0,048	0,01	-0,24	0,145	.448**	.550**	.684**	1								
10	**Normative belief**	35	2,03	0,71	0,173	-0,06	0,068	-0,33	0,118	0,261	.567**	.628**	.914**	1							
11	**Water usage control**	35	4,03	0,51	0,25	0,008	0,189	0,21	0,151	-0,09	0,029	-0,02	-0,11	-0,09	1						
12	**Behavior control**	35	3,99	0,65	-0,18	-0,04	.374*	0,18	0,043	-0,19	-0,19	-0,01	-0,22	-0,21	0,266	1					
13	**Easy to keep dry**	35	4,17	0,38	0,149	-0,18	-0,18	.384*	-.402*	-0,26	-0,11	-0,09	-.335*	-.385*	0,12	0,002	1				
14	**Voluntariness**	35	3,50	0,76	-0,2	-0,02	0,06	.455**	-0,03	0,329	-0,09	-0,16	-0,14	-0,31	-0,04	-0,01	0,332	1			
15	**Intention**	35	2,40	0,60	-0,14	-0,02	0,127	0,178	0,188	.343*	0,163	0,323	0,32	0,119	-0,17	0,026	0,305	.396*	1		
16	**Age**	35	3,57	0,85	-.345*	-0,25	0,022	0,249	-0,17	-0,23	-.385*	-.371*	-.450**	-.424*	0,164	.377*	0,129	0,107	-0,09	1	
17	**Education**	35	2,94	0,64	0,055	0,037	-0,09	-0,26	-0,01	-0,1	-0,09	-0	0,151	0,151	-.589**	-0,29	-0,04	0,033	-0,03	-.425*	1
18	**Income**	35	2,26	0,98	-0,19	0,109	-0,07	0,096	-.432**	-0,22	0,076	0,069	0,03	0,134	-0,03	0,205	0,199	0,011	0,02	0,066	0,118
	*. Correlation is significant at the 0.05 level (2-tailed).																				
	**. Correlation is significant at the 0.01 level (2-tailed).																				

Table 4. Mean and correlation laggards adopter of electronic toilet seats in Jakarta

Mean and Correlations

		N	Mean	Std. Deviation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	**Laggards**	37	3,78	0,70	1																
2	**Relative Advantage**	37	3,72	0,75	.366*	1															
3	**Attitude**	37	3,05	1,09	0,15	.584**	1														
4	**Image**	37	3,43	0,88	0,176	.485**	0,295	1													
5	**Compatibility**	37	2,31	1,02	0,212	.521**	.629**	0,282	1												
6	**Ease of use**	37	3,28	1,12	0,106	0,153	-0,02	0,146	0,216	1											
7	**Triability**	37	2,54	1,02	-0,09	0,01	0,095	0,033	0,203	0,266	1										
8	**Observability**	37	2,26	0,78	-0,06	-0,08	0,141	0,095	0,283	0,262	.745**	1									
9	**Subjective Norm**	37	1,86	0,67	0,225	0,228	.431**	.380*	.545**	0,122	.374*	.610**	1								
10	**Normative belief**	37	2,03	0,76	0,163	0,13	.334*	.443**	.395*	0	0,25	.445**	.820**	1							
11	**Water usage control**	37	3,68	0,78	.383*	.422**	0,259	0,082	0,19	0,14	-0,06	-.338*	0,001	0,042	1						
12	**Behavior control**	37	3,68	0,80	0,26	.770**	.385*	.542**	0,289	0,095	-0,07	-0,27	0,112	0,071	.673**	1					
13	**Easy to keep dry**	37	3,86	0,86	0,197	.683**	0,197	.542**	0,122	0,208	-0,05	-0,2	-0,12	-0,12	0,303	.760**	1				
14	**Voluntariness**	37	2,55	0,91	0,086	.449**	.538**	.353*	.475**	0,178	.414*	.329*	.438**	.455**	0,194	0,317	0,231	1			
15	**Intention**	37	2,19	0,84	0,221	0,17	0,304	.356*	.490**	0,074	0,158	.358*	.763**	.874**	-0,01	0,01	-0,07	.444**	1		
16	**Age**	37	3,27	0,73	-0,26	-0,26	-0,05	-0,06	-0,01	0,193	0,039	-0,03	-0,07	0,083	0,173	-0,1	-0,15	0,124	0,092	1	
17	**Education**	37	3	0,97	0,064	0,046	0,19	0,072	0,231	0,015	0,212	.340*	.432**	0,322	-0,12	-0,08	-0,03	0,095	.394*	0,078	1
18	**Income**	37	2,16	1,12	-0,16	0,039	0,286	-0,09	0,3	0,086	0,278	0,322	0,271	0,164	-0,09	-0,07	0,007	0,058	0,232	0,115	.665**

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

There was positively strong correlation easy to keep dry and relative advantage (r = 0.683, p<0.01), it indicates that the more likely respondent feel the product will help them to keep their bathroom dry easily the more likely they understand the product function. Perceived behavior control was also positively strong correlated with water usage control (r=0.673, p<0.01). This may indicates that respondent with perceived avoid using hand to clean backside tend to control the water usage.

Table 5 presents the results from the stepwise multiple regression analysis of electronic bidet toilet seats in Jakarta. Intention and voluntariness explained 17% of the variance in early majority. Intention (β=0.45, p<0.001) and voluntariness (β=-0.40, p<0.001) were significant predictors of early majority. The multiple regression equation is

$$Y' = 4.85 + 0.45\,X_1 - 0.40\,X_2 + \varepsilon$$
$$, Adjusted\ R^2 = 0.17$$

Table 5. Multiple regression analysis of electronic bidet toilet seats adoption in Jakarta

Jakarta Electronic bidet toilet seats adoption factors

Constant Predictors	Adjusted R Square	β_0	Beta	Sig.	equation
		Early Majority			
	0.17	4.85			
Intention			0.45	0.00	
Voluntariness			-0.40	0.00	$Y' = 4.85 + 0.45\,X_1 - 0.40\,X_2$
		Late Majority			
	0.11	4.14			
Observability			0.49	0.03	$Y' = 4.14 + 0.49\,X_1$
		Laggard			
	0.12	3.68			
Water usage			0.27	0.01	
Age			-0.34	0.03	$Y' = 3.68 + 0.27\,X_1 - 0.34\,X_2$

The result indicates that the more respondent who were familiar with the product, interested to seek product's information and wanted to replace their existing toilet with less conduct trial, the more they become early majority.

Observability (β=0.49, *p*=0.03) was the most powerful significant predictor and explained 11% of variance in late majority. The multiple regression equation is

$$Y' = 4.14 + 0.49\,X_1 + \varepsilon \quad , Adjusted\ R^2 = 0.11$$

It may suggest that the more respondent who were not familiar with the product however feel that the product would easy to find and talked about it with others the more they become late majority. Water usage and age were explained 12% of variance in laggards. Water usage (β=0.27, *p*=0.03) and Age (β=-0.34, *p*=0.03) were significant predictor for laggard. The multiple regression equation is

$$Y' = 3.68 + 0.27\,X_1 - 0.34\,X_2 + \varepsilon \quad , Adjusted\ R^2 = 0.12$$

The result indicates that the more respondent who were not interested with the product and did not want to seek the product information however they feel positively that the product could control water usage and had younger ages were more likely become laggards.

6. Conclusion and Discussion

The table 1 shows that early majority was the majority adopter category of electronic bidet toilet seat in Jakarta. The result in the table 5 shows that intention and voluntariness were the significant predictors to adopt the product for early majority. It may assume that the early majority in Jakarta will adopt the product if they already familiar and interested to use the product although without conduct trial.The voluntariness and image was the part of attribute of innovation which developed and applied by Moore and Benbasat (1991).

The easier it is for late majority to see the results of innovation, the more likely they are to adopt (Rogers, 2003). Most of the middle class respondent in Jakarta was relatively younger, these emerging middle class is usually interested to use new innovative product even with limited information and experience to use the product. However, poor communication with customers could lead to purchase decision based on past experience rather than the new product (Eng et.al, 2009).

Table 5 also show that for late majority adopter in Jakarta, they will adopt the product if they have opportunity observe the product. At present, it would be difficult for late adopter to find electronic bidet toilet seats in the public buildings in Jakarta. The late adopters have difficulty to try and to find the product due to the product only installed in TOTO show rooms and high class five stars international hotels in Jakarta. Visibility stimulates peer discussion of new idea, as the friends and neighbors of an adopter often request innovation evaluation information about it (Rogers, 2003). People intend to perform a behavior when they evaluate it positively, when they experience social pressure to perform it, and when they believe that they have the means and opportunity to do so (Ajzen, 2005).

For laggard adopters in Jakarta, water usage and age were the significant predictors to adopt the product. This study also found that age have negative effect on product adoption for laggards. It indicates that the age effect and behavior to use plenty of water to clean backside were contributed to make people do not interested to use electronic bidet toilet seats. The product marketing also needs to promote and understanding of what sets the innovation apart from their conventional counterpart (Thiele, 2008). To create demand pushes innovation, value starts with the buyers and an adoption of an innovation will occur when the innovation benefits the consumer (Herbig et.al, 1995).

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